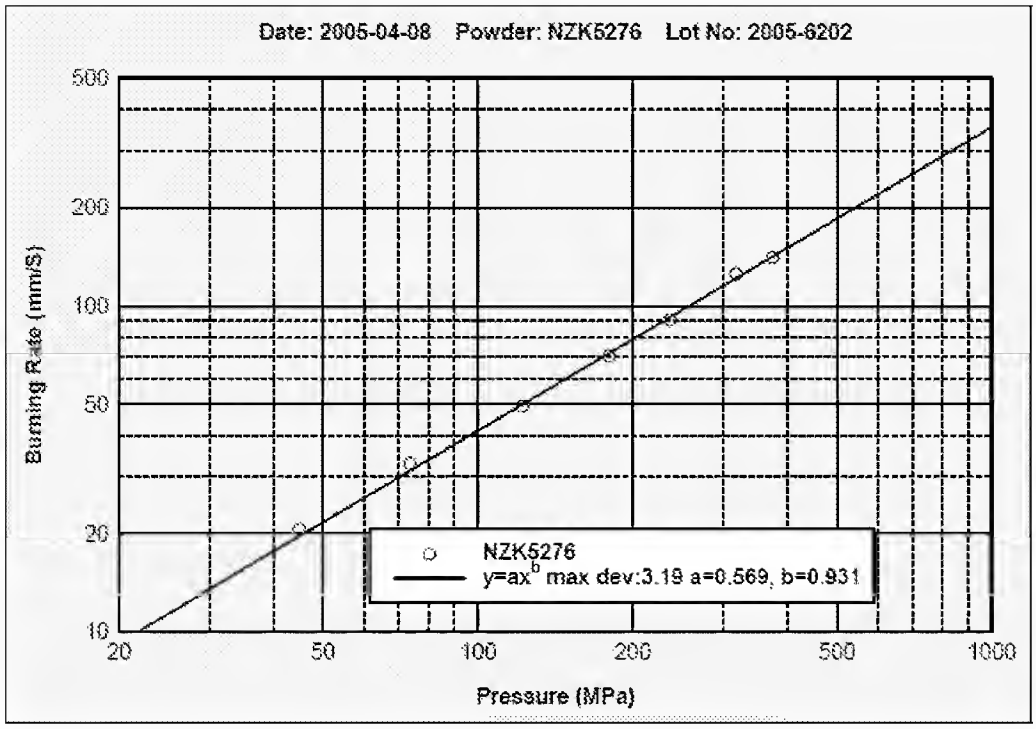
REMARKS

Claims 1-20 are pending in the application. Claim 1 has been amended to recite " for barrel weapons" and "of said all outer surfaces of at least one propellant tube, so that ignition of the propellant tubes is successively done one after the other and combustion of the propellant tubes is partially mutually overlapping the combustion of the next propellant tube" for purposes of clarification and not to limit its scope. Claim 1 has also been amended to recite "at least two". Claims 1 and 9 have been amended by deleting the term "it's" for purposes of clarification and not to limit their scope. Claims 2 and 3 have been amended to recite "of" in place of "included in "for purposes of clarification and not to limit their scope. Claim 10 has been amended by deleting the term "of a type previously disclosed per se" for purposes of clarification and not to limit its scope. The claims have also been amended by removing the numerical references. No new matter has been added.

The rejections of claims 1-20 under 35 USC 112, first paragraph have been overcome the amendments to the claims and/or are not deemed tenable. The Office Action mentions that the disclosure does not enable one to select distances between perforations relative to the type of propellant. With respect to this, each type of weapon has, of course, its own specific data; i.e. barrel length; maximum pressure allowed and the like, which data all are known to those skilled persons making a propellant for this type of weapon. A skilled artisan would also know how to find the burning rate for a certain type of propellant from a diagram as shown below (e.g., this is for Powder NZK5276, which is a specific type of propellant). When knowing the burn rate for the type of propellant being used and the data for the weapon being used, the distances between perforations can be calculated by persons skilled in the art without any more detail or disclosure than what is already present in the specification such as at page 2, col. 1, lines 3-12 and lines 27-36 of the published application.



Burn rate diagram

Concerning the remark that the specification does not support the tube being "in the charge" we refer to page 3, paragraph 0017, line 21: "Every propellant tube contained in the charge", paragraph 0020, lines 2-3 "propellant tubes contained in the charge". Nevertheless, we amended claims 2 and 3 to recite "of the charge".

Regarding claim 7 and the support for the tubes being both inside one another and directly after one another, please see Fig. 8 and the description paragraph 0037 on page 4 of the published application.

The rejections of claims 1-20 under 35 USC 112, second paragraph have been overcome the above amendments to the claims and/or are not deemed tenable.

Claims 1-20 were rejected under 35 USC 103 as being obvious over U.S. Patent 694,295 to Maxim in view of U.S. Patent 3,256,819 to Leeper. The cited references do not render obvious the present invention.

Maxim, like the present invention, refers to charges for barrel weapons projecting a projectile down the barrel. However, Maxim fails to disclose a method wherein "before initiation of the charge, at least one of the total number of outer surfaces of these propellant tubes that are available for initiation has been treated with an inhibition, surface treatment or surface coating that delays the propagation of ignition to this surface, so that combustion of the propellant tubes is partially mutually overlapping", as recited in the present claims.

Leeper does not overcome the deficiencies of Maxim with respect to rendering unpatentable the present invention. Among other things, Leeper is not even properly combinable with Maxim. In particular, Leeper refers to a rocket propellant, and not to charges for barrel weapons as recited in the present claims.

A rocket propellant is designed to achieve a certain gas pressure out from the rocket motor driving the rocket motor in a forward direction. There is no barrel volume, as it is in a barrel weapon, which increases rapidly behind the projectile as the projectile moves along the barrel. The projectile can only accelerate in the barrel as long as the gas pressure accelerates accordingly. That is why a charge for barrel weapons needs to be progressive. If there is only one propellant charge, the acceleration will stop when the propellant burns out. This means that in a very long barrel the propellant must either be very large, creating a very high pressure that might burst the barrel in a barrel explosion, or be made up of several separate charges burning one after the other creating a continuously increasing gas flow filling the void behind the projectile accelerating inside the barrel. If all these separate charges ignite at the same time the gun barrel will most certainly explode.

According to the present invention, several tubular progressive (perforated) propellant charges of which at least one is inhibited on all outer surfaces so that the successive combustion of the several propellant tubes is partially mutually overlapping in time is employed. This has resulted in achieving that in one such propellant charge one propellant tube *after* the other burn creating single pulses of gas pressure that together, optimally create a **constant** pressure inside the barrel behind the projectile, which constant pressure optimally should be the same as the allowed pressure for the gun barrel. The barrel will then not be at risk to explode and the projectile will also accelerate all the time it is inside the barrel. This has been very difficult to accomplish as evidenced by the very long time that has occurred in seeking useful solution for barrel weapons.

In Leeper, disclosing a rocket or gas generator, it is either desirable to achieve a "constant burning surface area" or a variable burning rate for increased thrust during take-off. It has nothing to do with gas pressures inside a barrel weapon. All embodiments in Leeper disclose only inhabitation on **one** side of each tube, wherefore it is obvious that **all** tubes ignite at **the same time**. The inhabitation is only concerned with making the specific tube burning regressively or progressively to give a wished resulting thrust, which could be progressive, constant or regressive. For instance, in Leeper Fig. 3, the outer tube (34) is inhibited only on the inside (35) forcing the tube to be regressive, while the inner tube (14) is only inhibited on the outside (23) making it progressive. Both the inner and the outer tube and also the webs will of course start to burn at the same time. This is true for all embodiments of Leeper.

The different pressure/time graphs will therefore all start from the origin of coordinates (at the ignition of the gas generator) and the "overlap" will create a combined pressure/time graph being either progressive, constant or regressive depending on how the different tubes are dimensioned. But all graphs will start at the same time and therefore the combined graph will end when the tubes have burnt up, which will be, more or less, at the same time.

In the present invention, the different pressure/time graphs will start successively **after** each other in time and therefore at different locations along the time axle and the "overlap" will create a combined pressure/time graph being as constant as possible (see Fig. 8) over a much longer time than compared with the Leeper charge. Please see the attached marked up versions of Figure 8.

Further indicia of the patentability of the present claims is the relative antiquity of Maxim, which is over 100 years old and of Leeper, which is over forty years old. Along these lines, please see *In re Adams* 148 USPQ 743 (CCPA, 1966) and In re *Lechen*, 125 USPQ 396 (CCPA, 1960).

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185, under Order No. 20459-400US1 from which the undersigned is authorized to draw.

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Respectfully submitted,

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